

# WATER QUALITY REPORT

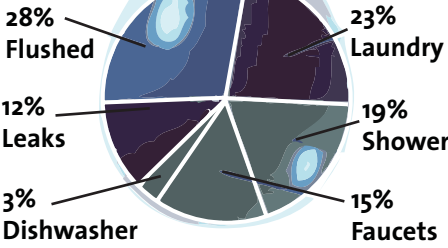
FOR BLOOMINGTON, MN • 2005 TEST RESULTS



JUNE 2006

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A DRINKABLE WATER DROP DISSECTED: DAILY WATER USAGE INSIDE A TYPICAL AMERICAN HOME

## THINK CONSERVATION

EVERY WATER DROP IS A PRECIOUS RESOURCE

DRINKABLE WATER IS A LIMITED RESOURCE. NEARLY 97 PERCENT OF THE WORLD’S water is salty or otherwise undrinkable. Another 2 percent is locked in ice caps and glaciers. That leaves just 1 percent for humanity’s needs. Drinkable water is precious.

Generally, Americans drink less than 1 percent of the treated water produced by water utilities. The bulk goes on lawns, in washing machines, and down toilets and drains. Typically, at least 50 percent, or 30 gallons, of water consumed by households each day is used for outside tasks such as landscaping. Inside, bathroom tasks claim the majority of the water used in a typical American home. *See the chart to the left.*

What can you do to help? Start small. Did you know that a slow drip from the kitchen faucet can waste a lot of water? Fifteen drips per minute adds up to almost three gallons of drinkable water wasted per day, which is 65 gallons per month and 788 gallons per year! Fix that drip and help conserve water.

## ENSURING YOUR SAFETY

BLOOMINGTON’S WATER SURPASSED ALL REQUIREMENTS

AT THE CITY OF BLOOMINGTON, OUR goal is to provide you with high quality, safe, reliable drinking water that meets every federal and state water quality requirement. This report contains information about the sources, treatment process and history of our water system. On page four, we provide a summary of the results of water quality monitoring on Bloomington’s water sources performed from January 1 to December 31, 2005, by the Minnesota Department of Health, the City of Minneapolis and our own laboratories. We have also tried to answer some of the most common questions that people have about our water. The purpose of this report is to advance consumers’ understanding of drinking water and heighten awareness of the need to protect precious water resources.

## GET INVOLVED

THE PUBLIC WORKS DEPARTMENT works hard to ensure that your water meets all federal, state and local guidelines. Your input on water quality issues is welcome. For information, contact Water Quality Supervisor Jon Eaton at 952-563-4501.

If you have questions about your water, or if we can be of service in any way, please give us a call or visit the City’s Web site.

**Water Plant (24 hours a day)**  
**952-563-4905**  
TTY (8 a.m. to 4:30 p.m., M-F)  
952-563-8740  
City Web site:  
www.ci.bloomington.mn.us,  
keywords: Water plant.

### SPANISH

Información importante. Si no la entiende, haga que alguien se la traduzca ahora.

### HMONG

Nov yog ntaub ntawv tseem ceeb. Yog koy tsi to taub, nrhiav neeg pab txhais rau koh kom sai sai.

## AWARD WINNING FACILITIES AT YOUR SERVICE

NEW MINNEAPOLIS FILTRATION PLANT RECEIVES TOP HONORS

SINCE BLOOMINGTON COMPLETED THE remodeling and expansion of the Sam Hobbs Water Treatment Plant in 2002, we’ve provided about 78 percent of our customers’ needs. The remaining water, which equaled 1.01 billion gallons in 2005, is supplied from the city of Minneapolis.

Minneapolis has been upgrading its facilities to meet drinking water quality standards set by new federal laws and regulations. Their efforts have not gone unnoticed. Just seven months after going on line, the Columbia Heights facility won a 2006 Global Water Award for “Water/Wastewater Project of the Year,” receiving higher marks than projects in California, Wisconsin, Egypt, Italy and Hong Kong. The award cites the plant’s ability to remove pathogens, pollution and other potential hazards from Mississippi River water.

Using ultra-filtration, particles as small as viruses get filtered out of the water. Chlorine is also added to kill harmful pathogens that can cause typhoid and other diseases.

The new ultra-filtration plant is the largest in the Western Hemisphere and the third-largest in the world. About 70 million gallons of water will be filtered each day. Only two other plants, in Singapore and Kuwait, filter more water using this process.

“We are just doing what is best for our citizens and customers,” said Minneapolis project manager Dale



Minneapolis' new ultra-filtration plant at Columbia Heights uses a state-of-the-art technology to provide ultra-clean water to Bloomington.

Folen. “This award recognizes the vision of Minneapolis’ leadership and the hard work of individuals and companies. We are all working toward providing the best-quality water possible.”

The original Columbia Heights plant, built between 1913 and 1918, is being phased out. Once all production moves to the new plant, the older facility will be maintained as a backup system.

Completion of the new plant ends the first phase of a program to replace all of Minneapolis’ water filtration plants. A second ultra-filtration plant will replace a facility in Fridley that was built in 1925. The initial selection of equipment has already begun. When that facility become operational in 2011, Minneapolis could become the world’s largest city to have all of its water, close to 165 million gallons each day, treated through ultra-filtration.

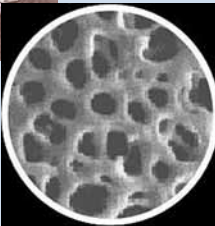


### PROTECTING DRINKING WATER

Public safety has been at the forefront since the September 11 attacks. Access to all water facilities has been strictly controlled. To continue education and peer-to-peer training, Minneapolis has added a classroom environment to teach the public about the treatment process without allowing access to actual treatment areas.



This cross-section shows the thousands of hollow fibers packed inside each vessel.



Like a sieve, tiny holes in each fiber’s walls trap materials and let the water through.

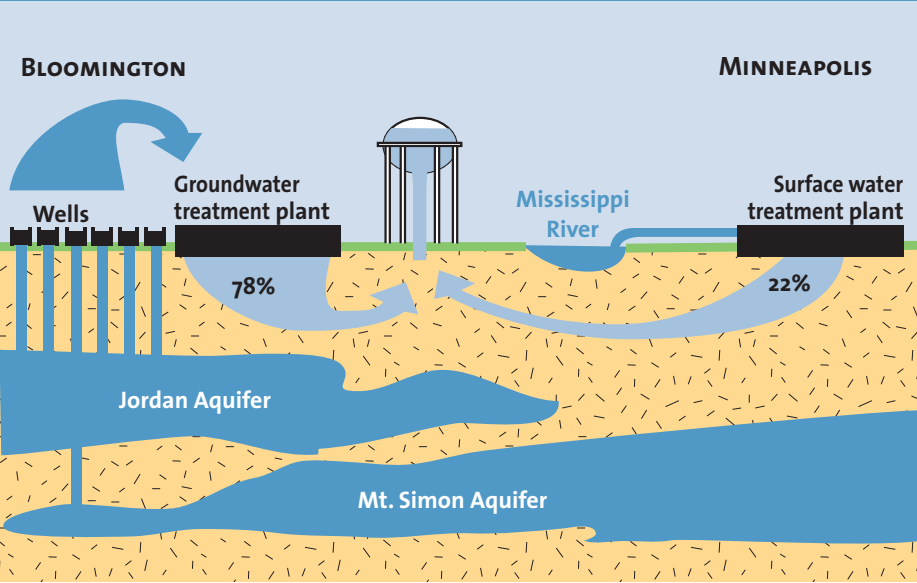
### ULTRA-FILTRATION PLANT FUN FACTS

Ultra-filtration uses millions of hollow fibers to take particulate matter out of water. Each of the plant’s 40 ultra-filtration units contains 28 vessels and each vessel contains 9,600 fibers. *See left.* This means more than 43 million fibers clean the water coming from this facility.

Altogether, these fibers create a surface area of approximately 1.7 million square feet. If put end-to-end, these fibers would stretch more than 40,000 miles, or about 1.6 times the circumference of the earth at the equator.



WHERE DOES YOUR TAP WATER COME FROM?



**THE REMODELED SAM H. HOBBS WATER**  
Treatment Plant can produce up to fourteen million gallons of treated, drinkable water per day.

**BLOOMINGTON WELLS**  
**78 PERCENT IN 2005**

In 2005, our water plant drew raw (untreated) groundwater from six deep wells. The wells extend downward between 376 and 963 feet into the Jordan, Prairie Du Chien-Jordan, Franconia-Mount Simon and Jordan-St. Lawrence Aquifers, porous underground rock formations that hold vast amounts of water.

The City drew 3.5 billion gallons of water, 78 percent of Bloomington's needs, from these deep groundwater wells in 2005.

**MISSISSIPPI RIVER**  
**22 PERCENT IN 2005**

To meet demand in excess of our production capabilities, we purchased treated water from the city of Minneapolis. Treated water from our plant is blended with similarly treated water from Minneapolis and sent throughout our City's distribution system. All of our consumers receive a blend of water from these two sources.

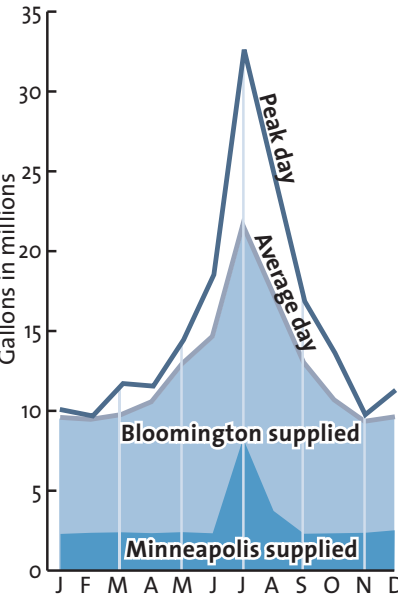
Minneapolis' surface water treatment plant takes its raw water from the Mississippi River. In 2005, the City purchased 1.01 billion gallons of water from Minneapolis, which supplied the remaining 22 percent of our water needs.

**HOW MUCH IS USED?**

IN 2005, RESIDENTS AND BUSINESSES in Bloomington used 4.5 billion gallons of water, down from 4.6 billion in 2004. This worked out to about 12.4 million gallons of water per day last year.

The chart below shows the peak day and average day of water use for each month during 2005, as well as the average amount of water treated at our plant and purchased from Minneapolis. To get a more accurate picture of the actual amounts of water consumed, peak day data was adjusted to account for fluctuations in our reservoir levels.

**2005 PEAK DAY AND AVERAGE DAY WATER USE PER MONTH**



THE TREATMENT PROCESS

**1** Treatment begins when lime, in the form of slakened quicklime (CaO), is mixed with raw water in one of our two solids contact basins. Each basin holds about half a million gallons of water.

**2** The lime and water mixture causes the pH in the water to rise, and calcium and magnesium (the main components of hardness) to form insoluble particles called flocs. As these floc particles grow in size, they settle to the bottom of the solids contact basins. The solids are removed, dewatered and used as a USDA-approved source of lime by Minnesota farmers to stabilize the pH in farm fields.

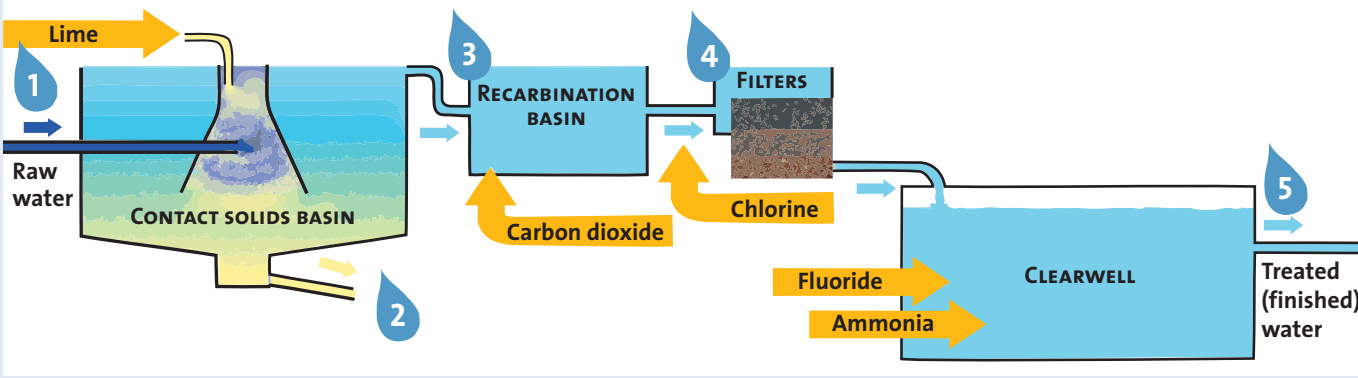
**3** The water enters a recarbonation basin where it is adjusted to the proper pH by adding carbon dioxide. A precise amount of chlorine is added to discourage bacterial growth as the water travels through our distribution system.

**4** The water is filtered to remove any remaining particles. And finally, it enters an underground reservoir called a clearwell where a small quantity of fluoride and ammonia are added. Fluoride promotes strong teeth and bones; ammonia works with the chlorine as a disinfectant. Now softened and disinfected, the water is ready for use by Bloomington residents and businesses.

**HOW SOFT IS OUR WATER?**

Bloomington is one of the few water utilities in Minnesota that supplies softened water to its consumers. Untreated groundwater enters the water plant with a hardness of about 19 grains (320 parts per million). Our treatment process reduces the water's hardness to about 5.2 grains (90 parts per million).

**5** The finished water from our treatment plant is pumped into the distribution system, where it is mixed with treated water purchased from the City of Minneapolis.



**A CAREER IN THE WATER INDUSTRY IS WAITING FOR YOU!**

ST. CLOUD TECHNICAL COLLEGE'S Water Environment Technologies (WETT) program provides you with the skills you need to land a great job in this rapidly growing industry.

- There are many benefits to this program:
- Hands-on learning.
  - 12-month program.
  - Metro and St. Cloud locations.
  - 100 percent placement rates.

CALL ST. CLOUD TECHNICAL COLLEGE TODAY AT 1-800-222-1009, EXT. 5952

FAQs: FREQUENTLY ASKED QUESTIONS ABOUT BLOOMINGTON’S WATER



SHOULD I GET A WATER FILTRATION SYSTEM FOR MY HOME?

BECAUSE BLOOMINGTON’S WATER surpasses all federal and state standards, home filtration systems are not necessary. However, if you choose to purchase a filtration system for aesthetic or medical reasons, keep the following in mind:

- Find out if the filter you are considering is capable of removing substances that concern you.
- Look for filters that have been certified by NSF International (an independent testing group) and UL (Underwriters Laboratory).
- Follow the manufacturer’s maintenance instructions carefully. When not properly maintained and serviced, filtration systems can harbor disease-causing bacteria that are not otherwise in the City’s water supply.



DO I NEED A HOME WATER SOFTENING SYSTEM?

OUR LIME-SOFTENING PROCESS removes most of the hardness in Bloomington’s water, reducing it from 19 grains per gallon (raw water) to about 5.2 grains per gallon (finished water). The water is also treated to be noncorrosive. This helps prevent unsafe levels of lead and copper from leaching into the water from home plumbing. Home softening systems can further reduce water hardness, usually by adding a small amount of sodium.

OTHER QUESTIONS?

Feel free to contact us at any time with your questions about drinking water. Our water plant’s telephone number is 952-563-4905.

WHY IS THE WATER FROM MY FAUCET CLOUDY?

OCCASIONALLY WE RECEIVE CALLS reporting water that appears cloudy or milky. Usually indicating the presence of either oxygen or calcium, cloudy water is perfectly safe to drink.

**Oxygen in water:** Sometimes water fresh from the tap appears cloudy. Within a minute or two, the cloudiness rises toward the top of a glass and before long the whole glass is crystal clear. This is caused by excess oxygen escaping from the water.

Changes in water temperature and pressure can cause the oxygen dissolved in it to reach a “supersaturated” state where more oxygen is in the water than it can hold. When the water passes through a faucet, the disturbance is enough to release the excess oxygen out of the water, forming microscopic bubbles. The bubbles are so tiny that it takes them a long time to rise through the water. No harm will come from using oxygenated water and you need not take any corrective action if you experience it.

**Calcium in water:** When calcium causes cloudiness, it is usually noticed in cold water. Let a glassful of the cloudy water sit for about 30 minutes and a white or grayish substance may settle to the bottom of the glass. The substance is calcium, a product of our water treatment process. Though it may be visually unappealing, such water is perfectly safe to drink or use for cooking.

The chemistry of water is surprisingly complex and many factors influence how it behaves. We treat Bloomington’s water so that it is slightly prone to deposit a trace of calcium sediment as it travels through our



distribution system. This helps to keep our water from becoming corrosive and reduces the likelihood that it might attack our water mains or leach lead or copper from our customers’ plumbing and fixtures. *See below.* Usually, this calcium sediment remains at the bottom of the water mains, unnoticed by our water users.

However, the calcium can be stirred up when a large volume of water is drawn through a water main in a short time. Events that can increase water velocity include firefighting, main breaks, hydrant maintenance and water or street-cleaning trucks filling their tanks at a hydrant. If you happen to turn on your cold water right after such an event, you may draw some of the stirred-up water into your pipes.

To clean calcium sediment from your system, we recommend that you wait an hour or two to allow the water in the main to settle. Then, open a large-bore faucet, such as a tub faucet, and let the cold water run for about 20 minutes. This will draw clean water through your system and should remove any remaining calcium from your pipes. Please call us if you have any concerns about cloudy water or if your water remains cloudy after taking these steps.

WHAT CAN I DO TO MINIMIZE EXPOSURE TO LEAD?

THE PRESENCE OF LEAD RANKS AMONG THE most common health concerns people have about drinking water. Recent studies suggest that levels of lead once thought to be safe can in fact pose dangers, especially to unborn babies and children. Fortunately, over years of regular and rigorous monitoring, the City of Bloomington’s water has never been found to be a significant source of lead.

In fact, lead pipes, solder, brass faucets and other plumbing in your home pose the greatest threat of adding dangerous levels of lead to your water. A few simple practices can minimize

your exposure to lead from your home. First, always use cold water for your cooking and drinking. If your plumbing contains lead, hot water will draw more lead out of it. Second, allow your cold water to run until it is very cold – a minute or more. This flushes out any water that may have been in your pipes long enough to pick up higher concentrations of lead. Additional information is available from the Safe Drinking Water Hotline at 1-800-426-4791. If you are concerned about your home’s lead levels, our laboratory can test your water for a fee.

About 42 billion gallons of clean drinking water are produced everyday by water systems in the United States and Canada. For the price of a can of pop, many communities deliver up to 1,000 gallons of fresh, clean drinking water to homes 24 hours a day.

American Water Works Association



IMPORTANT INFORMATION

FOR PEOPLE WITH COMPROMISED IMMUNE SYSTEMS

SOME PEOPLE MAY BE MORE VULNERABLE to contaminants in drinking water than the general population. Immuno-compromised people, such as people with cancer undergoing chemotherapy, people who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants, can be particularly at risk from infections.

These people should seek advice about drinking water from their health care providers. Environmental Protection Agency (EPA) and Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline: 1-800-426-4791.

RADON IN WATER

RADON IS A RADIOACTIVE GAS THAT occurs naturally in some groundwater. It poses a stomach cancer risk when ingested and a lung cancer risk when released from water into the air during showering, bathing and washing dishes or clothes.

The EPA’s Maximum Contaminant Level for radon is 300 pCi/L. In tests of Bloomington’s water in 2005, our results are well below this limit.

Some states have adopted an Indoor Air Program that requires citizens to reduce radon in indoor air. Because radon in indoor air poses a much greater health risk than radon in drinking water, a more lenient “Alternate Maximum Contaminant Level” of 4000 pCi/L generally applies to water in those states. Minnesota is currently in the process of adopting such an Indoor Air Program.

For more information on radon, contact the Environmental Health Division at 952-563-8934 or go to the City’s Web site at [www.ci.bloomington.mn.us](http://www.ci.bloomington.mn.us), keyword: Radon.





## Water Purity

### Information Provided by the U. S. Environmental Protection Agency

Drinking water sources in the United States, both tap water and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over or through the ground, it dissolves naturally occurring minerals and, sometimes, radioactive material. Water also picks up substances resulting from animal or human activity.

To ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) regulates the amounts of certain contaminants in water provided by public systems. The Food and Drug Administration regulates contaminants in bottled water to provide the same public health protection.

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. Their presence does not necessarily indicate that the water poses a health risk. Information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

### Contaminants that may be present in source (“raw”) water

**Microbial contaminants**, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

**Inorganic contaminants**, such as salts and metals, can be naturally occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

**Pesticides and herbicides** come from a variety of sources such as agriculture, urban stormwater runoff and residential uses.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems.

**Radioactive contaminants** can be naturally occurring or be the result of oil and gas production and mining activities.

# Bloomington’s Water is Regularly Tested

## 2005 Water Quality Results

The Minnesota Department of Health (MDH) and City staff regularly test samples of Bloomington’s water for more than 140 contaminants. **No contaminants were detected at levels that exceeded the state or federal standards.** Some substances were detected in trace amounts below the maximum allowed in drinking water. Only those substances that were detected appear on the table; many results are not listed because the substances were not found at any time in 2005 by tests designed to detect them. Some substances are tested less than once

per year; in such cases, the most recent results and the test date are reported. Some contaminants do not have Maximum Contaminant Levels (MCL) established. These "unregulated contaminants" are assessed using state standards known as health risk limits to determine if they pose a threat. If unacceptable levels of an unregulated contaminant are found, the response is the same as if an MCL has been exceeded; the water system must inform its customers and take other corrective actions.

The table’s upper portion summarizes test results performed on Bloomington water. The lower portion shows results for Minneapolis water because we blend Minneapolis treated surface water with our water plant’s treated groundwater. Bloomington’s water is a blend of water from these two sources. To obtain a source water assessment on your drinking water, call 651-201-4670 or 1-800-818-9318 (press 5) during normal business hours. Source water assessments are also available on-line at <http://mdh-agua.health.state.mn.us/swa/>.

Detected substance	Amount detected	Allowed (MCL)	Ideal (MCLG)	Typical source of substance	Type	Meets standards?
CITY OF BLOOMINGTON						
Chlorine (ppm)	Avg. = 1.6 (0.8 to 2.1)	4 MRDL	4 MRDLG	Water additive used to control microbes	R	Yes
Combined Radium (pCi/l) (03/21/2003)	0.21	5.4	0	Erosion of natural deposits	NR	Yes
Copper (ppm)	90% = 0.16 (0 of 30 sites over AL)	AL= 1.3	NA	Corrosion of household plumbing systems; erosion of natural deposits	NR	Yes
Fluoride (ppm)	Avg. = 1.1 (1.0 to 1.2)	4	4	Added for strong teeth/bones; erosion of natural deposits	R	Yes
Haloacetic Acids (HAA5) (ppb)	Avg. = 0.8 (ND to 7.6)	60	0	By-product of drinking water disinfection	R	Yes
Lead (ppb)	90% =12.0 (2 of 30 sites over AL)	AL = 15	NA	Corrosion of household plumbing systems; erosion of natural deposits	R	Yes
Sodium (ppm) (02/13/2004)	4.4	NR	NR	Erosion of natural deposits	NR	Yes
Sulfate (ppm) (02/13/2004)	5.3	NR	NR	Erosion of natural deposits	NR	Yes
Trihalomethanes (TTHM) (ppb)	Avg. = 0.8 (0.5 to 1.3)	80	0	Chlorination by-product	R	Yes
CITY OF MINNEAPOLIS						
Alpha Emitters (pCi/L) (04/17/2002)	0.4	15	0	Erosion of natural deposits	R	Yes
Chlorine (ppm)	Avg. = 2.9 (2.1 to 3.1)	4 MRDL	4 MRDLG	Water additive used to control microbes	R	Yes
Copper (ppm)	0.26 (0 of 50 sites over AL)	AL = 1.3	NA	Corrosion of household plumbing systems; erosion of natural deposits	R	Yes
Fluoride (ppm)	Avg. = 1.0 (1 to 1.1)	4	4	Added for strong teeth/bones; erosion of natural deposits	R	Yes
Haloacetic Acids (HAA5) (ppb)	Avg. = 27 (7.2 to 56)	60	0	Chlorination by-product	R	Yes
Lead (ppb)	4 (0 of 50 sites over AL)	AL = 15	NA	Corrosion of household plumbing systems; erosion of natural deposits	R	Yes
Nitrate (as Nitrogen) (ppm)	0.24	10	10	Fertilizer runoff; leaching of septic or sewer; erosion of natural deposits	NR	Yes
Sodium (ppm) (12/1/2004)	8.9	NR	NR	Erosion of natural deposits	NR	Yes
Sulfate (ppm) (12/1/2004)	23	NR	NR	Erosion of natural deposits	NR	Yes
Trihalomethanes (TTHM) (ppb)	Avg. 36 (ND to 69)	80	0	Chlorination by-product	R	Yes
Turbidity (NTU)	Max: 0.31 (limit met 99%)	TT	NA	Soil runoff	R	Yes
Total Coliform (cfu)	1%	Less than 5%	0	Bacteria naturally present in the environment	R	Yes

### Key

<b>MCL</b>	<b>Maximum Contamination Level.</b> The highest level allowed in drinking water. MCLs are set as close to MCLG as feasible using the best available treatment technology.	<b>NA</b>	<b>Not Applicable.</b>	<b>NTU</b>	<b>Nephelometric Turbidity Unit.</b> A measure of water clarity.
		<b>AL</b>	<b>Action Level.</b> An amount that, if exceeded, triggers a specific response that a water system must follow.	<b>pCi/L</b>	<b>Picocuries Per Liter.</b> Measures radioactivity.
<b>MCLG</b>	<b>Maximum Contamination Level Goal.</b> Below this level there is no known or expected health risk. MCLGs allow for a margin of safety.	<b>TT</b>	<b>Treatment Technique.</b> A required process intended to keep the level of a contaminant at an acceptably low level.	<b>MRDL</b>	<b>Maximum Residual Disinfectant Level.</b>
		<b>ppb</b>	<b>Parts Per Billion.</b> Units of a substance, in pure form, found in every billion units of water.	<b>MRDLG</b>	<b>Maximum Residual Disinfectant Level Goal.</b>
<b>NR</b>	<b>Not Regulated</b> , but monitoring is required by the State of Minnesota. No limits have been set for this compound.	<b>ppm</b>	<b>Parts Per Million.</b> Units of a substance, in pure form, found in every million units of water.	<b>ND</b>	<b>No Detection.</b>
<b>R</b>	<b>Regulated.</b>			<b>90%</b>	This is the value obtained after disregarding the 10 percent of the samples taken that had the highest levels.